

2018-04-29

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Pettinger, Clare

<http://hdl.handle.net/10026.1/11103>

10.1177/2059799118769820

Methodological Innovations

Sage

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Clare Pettinger, Dietetics, School of Health Professions, Plymouth University. PL6 8BH

Gayle Letherby, Honorary Professor, Sociology, School of Health Professions, Plymouth University

Julie M Parsons Sociology, School of Government, Plymouth University, PL4 8AA

Lyndsey Withers, Associate, Peninsula School of Medicine and Dentistry, Plymouth University, PL6 8BU

Miranda Cunningham Occupational Therapy, School of Health Professions, Plymouth University

Andrew Whiteford, Social Work, School of Health Professions

Gia D'Aprano, Research Assistant, School of Health Professions, Plymouth University. PL6 8BH

Richard Ayres Peninsula School of Medicine and Dentistry, Plymouth University, PL6 8BU

Carole Sutton, Sociology, School of Government, Plymouth University, PL4 8AA

Corresponding Author: Clare Pettinger Email: clare.pettinger@plymouth.ac.uk

Word count:

ABSTRACT

In this paper, we report on our experience of working on an exploratory project where the primary objective was to involve homeless service users with food based participatory qualitative approaches. The project 'Food as a Lifestyle Motivator' (FLM) aimed to explore food experiences and behaviours in a sample of users of homelessness services in a south west UK coastal city, in order to create solutions to improve their wellbeing. A mixture of qualitative methods was used, including observations, photo-elicitation and focus group discussions. We aimed to be participatory and 'creative' in our approach and in our analysis. Here we focus on detailing and critiquing our approach to the collection and analysis of data.

Key words – qualitative, participatory methods; creative approaches; under-researched groups, harder-to-reach groups

INTRODUCTION

The ‘Food as a Lifestyle Motivator’ (FLM) project, on which we report here, aimed to explore the use of participatory methods to engage and explore food experiences and behaviours in a sample of homeless males in a south west UK coastal city. The primary objective of our exploratory study, was to engage homeless individuals residing in a homeless centre, with participatory and creative qualitative approaches so that a dialogue could be started that paves the way towards solutions for improved wellbeing. The project has demonstrated that food, as well as being central to many health concerns, may also be a powerful ‘lifestyle motivator’ (i.e. potential a way to motivate towards enhanced lifestyle behaviours) for those on the edges of society (see Lambert and Wiebel, 1990). During the study, powerful visual and narrative food themed data were generated that provided a ‘voice’ for homeless individuals, challenging traditional research paradigms and identifying innovative approaches for engaging and empowering community groups that are traditionally ‘harder-to-reach’ (see xxxx et al 2017).

Data collection consisted of observations (photographs) being recorded of food related activities in the homeless centre, followed by a sample of service users participating in photo elicitation approaches, using focus group discussions to capture their narratives. Following a thematic analysis, we utilised the ‘Voice Centred Relational Method’ (VCRM) (Mauthner and Doucet 1998) in an attempt to give further authenticity to the voices of participants. Thus, we generated a set of ‘I-Poems’ drawing on statements incorporating “*I/we/you*” statements made by respondents during the focus group discussions in response to the images they had created. (Survey data were also collected from key staff in the homeless centre, but this is not the focus of this paper).

Here, we focus specifically on the data collected from and with service users and critically reflect on their participation, as well as our planning, data collection and

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

analysis experience. Our discussion is supplemented with some of the photographs taken by the research participants.

METHODS FOR ENGAGEMENT: approach and representation/participation

Introducing the Study

Qualitative methods focus on the 'experiential' in the belief that the best way to find out about people is to let them 'speak for themselves' (Stanley and Wise, 1993). The use of qualitative research is also seen by some as a way of giving respondents more control over the research process. Qualitative researchers then are concerned to generate data grounded in the experience - the stories - of respondents and their auto/biographical others:

Story telling has engaged researcher attention as a method of accessing the personal world of illness ... For the purpose of our inquiries, verbal accounts are more than vehicles for collecting personal information; they are the very processes of identity construction. (Koch and Kralik, 2001: 34).

We were concerned to employ participatory methods to engage service user respondents, not least in an attempt to challenge the researcher/respondent balance of power (Koch et al 1999, xxx 2009). Participatory Action Research (PAR) is defined as a 'systematic inquiry, with the participation of those affected by the problem, for the purposes of education and action or affecting social change' (Green et al 1995: 2, cited in Minkler 2010: S81). The four guiding principles of PAR are:

- democratic, enabling participation of all people;
 - equitable, acknowledging people's equality of worth;
 - liberating, providing freedom from oppressive, debilitating conditions;
 - life enhancing, enabling the expression of people's full human potential
- (Stringer 1996; see also Minkler and Wallestein 2003 and Minkler 2010).

As the research progressed, clear limitations emerged around the precise nature of 'participation' as part of this desired PAR approach. Later in this paper we reflect on how much of these guiding principles we were able to achieve.

Participatory photographic methods for engaging critical reflection around the lived experience of marginalized groups have been used previously with some degree of success (Catalani and Minkler, 2010), yet the research concerned with food related behaviours seems under-represented. For example, the pure 'Photo-Voice' method has been used to explore food acquisition in older rural Canadian adults (Neill et al, 2011) and with 'at-risk' youth undertaking a cooking skills course in Canada (Clarke-Thomas & Irwin, 2013). The more generalized 'Photo Elicitation' method was used to explore single Mexican mothers' food choices and effects on their children over the life-course (Johnson et al 2011). Given our knowledge that engagement approaches with homeless communities are lacking (Olivet, 2010), such methods showed potential for our use, as they offer a democratic approach that can be beneficial in supporting participant involvement in the research process.

The many challenges associated with homelessness are irrefutable, not least in terms of vulnerability, mental health issues, drug/alcohol abuse, chronic/acute health which impact life expectancy and can lead to disempowerment, low motivation, reduced opportunity, and lack of personal support strategies and networks (Radley et al, 2005; Norman and Pauly, 2013, see also xxx et al 2017). Thus, a qualitative auto/biographical approach harnessing PAR was deemed appropriate:

. . .autobiographical narratives have been taken as a way to create selves for those – to whom selfhood has often been denied. . . . By calling attention to the social structures that require stories, the concept of autobiographical occasions also calls attention to the interests of those other than the autobiographer herself (sic) in the ways that stories of the self are told (Zussman 2000: 6).

A self-conscious auto/biographical approach' also acknowledges the social location of the writer(s) thus making clear the author's role in constructing rather than discovering the story/the knowledge' (xxx 2000: 90). Auto/biographical studies - either focusing on one, several or many lives – highlight the need to liberate the individual from individualism; to demonstrate how individuals are social selves – which is important because a focus on the individual can contribute to the understanding of the general (Mills 1959, xxx 2000).

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Ethical approval was granted by two separate ethics committees i. Plymouth University Faculty of Health and Human Sciences Research Ethics Committee (ref 13/14-262) and ii) The Territorial Health, Ethics Advisory Committee, recruitment began.

The study aimed to recruit 10 male homeless service users, residing in a community homeless centre that already had a relationship with the University and was already involved in structured food and cooking activities. The centre accommodates 60 men and ten women in single rooms plus an emergency dormitory space. Meals are provided but some residents opt for a bed and breakfast arrangement. The age range is 18 years to 65 years; the majority are 35-45 years, most are local white British, but otherwise from diverse social backgrounds. Residents are normally unemployed and in receipt of welfare benefits. With an allocated support worker, they develop a personalised support plan, which might include accessing health services, involvements with the criminal justice system or counselling. Training and recreational opportunities include English and Maths classes, cooking and craft activities, and sports.

Introducing Service User Participants

Convenience sampling was initially used, accessing service users via gatekeepers (support workers) (Namageyo-Funa et al, 2014). This method was deemed appropriate in a previous similar study (Radley et al 2005). Purposive sampling was then used to select participants who were able to engage with the study (see inclusion/exclusion criteria below). At the time of the study, the centre was male only, since when a small number of females has been admitted. We acknowledge the limitations of excluding women and younger people from the study (see xxx et al 2017 for discussion on limitations of selected sample). We also realise that recruiting more severely complex cases would provide more representative and meaningful data for the diversity of this community (Bonevski et al 2014). However, for the purpose of this study a participant group of 10 males was deemed to be consistent with the manageability of data analysis (Hewitt-Taylor, 2001). In total 12 service users were recruited initially, nine opted to be involved in photo elicitation and six of

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

these participants returned their camera having taken photographs of food and food related activities.

Inclusion Criteria

- Males over 18 years of age already engaged in food activities in the homeless centre
- Sufficient English to communicate verbally
- Ability to use disposable camera/mobile phone

Exclusion Criteria

- Those demonstrating signs of being 'heavily under the influence' or 'visibly unable to communicate'
- Those who pose a risk to themselves or others through manifestations of mental health problems or the influence of non-prescriptions drugs and/or alcohol.

One member of the research team – the person primarily functioning as the 'gatekeeper' to access the participants (XX) – was also responsible for creating anonymised 'biographical pen portraits', agreed with each of the participants. This assisted our auto/biographical participatory focus. The pen portraits are useful as an introduction to each respondent and also aided further data analysis. These individuals were residents in the centre at the time of data collection. For the purposes of this article we draw on these to briefly introduce each participant:

Hassan is a 45 year-old Somali male who has lived at the centre at least five times over the last seven years.

Ray is a 52 year-old white British male who has lived in the centre for the last 18 months and has been a resident three other times over past years.

Jeffrey is a 62 year-old white British male who has lived in the centre for nine months.

Paul is a 38 year-old white British male originally from Yorkshire but living in Plymouth for 19 years. He came to the centre three months ago.

Jim is a 59 year-old white British male and is single with no children. He has lived all his life in Plymouth and has been at the centre for two years.

Josh is a 37 year-old white British male, originally from the Midlands. Josh has been at the centre for one year.

Nemo is a 43 year-old white male with dual Australian and British nationality. He has been at the centre for six months.

Ross is a 34 year-old white British male from London who has lived at the centre since November 2013 as well as on three previous occasions in recent years.

Ricky is an 18 year-old single white British male. He is from Plymouth and came to the centre briefly for four months in 2014.

Table 1 details the involvement of each service user participant.

Table 1. Service user participants and their involvement in photo elicitation			
	Photo Dialogue/ Elicitation	Focus Group One	Focus Group Two
	Nemo	Nemo	
	Ross	Ross	
	Jeffrey	Jeffrey	
		(Ricky)	
	Ray		
	Paul		Paul
	Jim		Jim
	Josh		
	Hassan		

Photo Dialogue and Photo Elicitation

‘Photo-Elicitation’, involves inserting photography and photographs into a research process in order to maximise the possibilities for empirical and ethnographic enquiry. Participatory visual methods specifically are considered to be “modes of inquiry that can engage participants and communities, eliciting evidence about their own health

and well-being” (Mitchell and Sommer, 2016: p521). Harper (2002) maintains that the use of images *can* ‘evoke deeper elements of consciousness than do words’. Despite being under-represented in food-related studies, this approach has been used with multifarious marginalized groups, from single mothers and youth to its wide-ranging use in more general health-related studies such as the experience of homeless women’s health issues (Bukowski and Buetow, 2011). Wang et al (2000) promotes its use for personal and community action, allowing participants to generate their own images which provide insight into ‘street level’ experience for policy makers. The act of taking the photograph in itself may provide further motivation to engage with research. The photograph can be a neutral third party (Schulze, 2007) and particularly useful when discussing issues with ‘vulnerable’ people and/or those traditionally considered to be ‘hard-to-reach’ (Liamputtong, 2007). Our study used this approach with food as the main the focus, which can be deemed as relatively novel.

Prior to photo elicitation data collection, a ‘photo-dialogue exercise’ was undertaken by six members of the multi-disciplinary research team before its use with participants at the centre. This valuable ‘team building’ exercise proved very insightful as to the processual considerations of what was being asked of our participants and aided the dynamics of working together and collaborating during this pilot phase and beyond. In line with PAR philosophy, our initial engagement with participants, by way of introduction to the project, entailed a general discussion generated from a similar ‘photo-dialogue’ exercise. Images of various food types were placed in front of the group and each person was asked to choose two images – one representing food they ‘liked’ or had positive connotations of, and one that they ‘disliked’. Discussions around memories and experiences were then shared and recorded for later transcription. At this stage, a research information sheet was made available to potential participants. Those who agreed to participate were asked to sign consent forms.

Participants were then issued with a disposable camera and given brief instructions on how to use it. They were then asked to take photos of their food activities over a ten-day period. This time span was chosen to incorporate several food events that were planned with centre involvement. There was minimal instruction given as to

composition or aesthetic considerations of taking photos, as it was deemed appropriate to allow for authentic portrayal of their relationship to food and food activities. The critique by Catalani and Minkler (2010) comments on the range of 'lead-in times' prior to the photo project, from photography lessons to no artistic intervention and everything in between. From lengthy team discussions, it was agreed that enhancing authenticity and reducing intervention was an important consideration, due to photo-elicitation using the images to prompt text based data for analysis. The intention was to retain the ability for photographs to elicit dialogic engagement and opportunities for expression around food in keeping with the dominant ethos of 'beyond text' methodologies. In the philosophy of the FLM aims, it was necessary to give participants a 'voice' - the opportunity for a sense of agency and empowerment as well as a novel way of relating to food.

Focus Group discussions

Two focus groups were then planned, with the intention of participants talking about their developed photographs in relation to their food relationships and behaviours. In practice although group times were advertised and with initial interest shown to attend these focus groups, only a small number of participants actually presented themselves at each event (table 1). Hence the format became more akin to 'small group interviews', but with the same remit. This is commonly seen in research with harder-to-reach transient populations, where methodological issues have been noted (Hickney and Downey, 2003) with flexibility and innovation recommended to mitigate these challenges. Questions were loosely framed around the experience of taking the photographs as well as general discussions associated with the images.

Considering the project had elected to utilise photo-elicitation as its operational approach to uncover food experiences of service users, it seemed salient to allow the method to present opportunities for them to respond according to their own constellations of memories, associations and feelings, rather than impose a more static questioning regime (see xxx et al, 2017). Both groups lasted an hour, and were attended by n=3, then n=2 participants respectively (table1). They were led by xx and observed by xx (also present was gatekeeper xx), thus ratio of 'researched' to 'researcher' was low, which might have inhibited participants and influenced their responses.

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Food activities taking place in the centre were observed and documented during the 10-day period. This included photographic records being taken of key food-related events, outlined in table 2. Cooking classes and bread making formed an important part of planned activities in the centre (image 1).

Observation of food activities in the centre



Image 1. Making bread

The allotment was created by the service users themselves (image 2), with produce intended to be used in cooking activities. Observations revealed variable participation by service users for the allotment.



Image 2. The allotment

Table 2. Food activities in the centre	
Food activities	Detail
Cooking classes x 2	Tuesday and Thursday each week; one session for main centre residents and one for self-catering flat residents.
Kitchen work	Includes clients who volunteer/help; can lead to a qualification.

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Allotment (growing)	Variable participation; produce used primarily in cooking classes and also main hostel kitchen subject to availability.
Meal routine Monday – Friday: cooked breakfast, no lunch, evening meal (4.30pm) Weekends: cooked breakfast roast lunch, then late afternoon snack	Ca 50 centre residents plus 12 ‘safe sleep’ temporary residents receive all meals. A small number (ca. 10) of centre residents are on B&B contracts and have access to a kitchen to cook for themselves. Twelve self-catering flats are attached to the centre.
Occasional food events	Catering for internal and external clients, and participatory food sessions. E.g. All Ways Apples Festival Healthy Living events
Bread making	For external clients; also used as fund raiser to support the allotment.
Soup run	Some residents access the soup run in addition to centre catering and a small number volunteer occasionally at the Sunday soup kitchen.

Analysis

Analysis is not something that only happens once all of the data are collected but is an ongoing part of the fieldwork process. Additionally, no study can be completely inductive as researchers begin the research with their own political and theoretical assumptions. With this in mind it is important to remember that all research accounts are partial and constructed by the researcher(s). This is not to say that research reports are merely constructions but they are influenced by the ideological position of the researcher(s) and their social and material location (Stanley and Wise 1990). Thus, the personhood of the researcher is relevant to theoretical analysis just as it is to research design and fieldwork:

Researchers are themselves people, with their own ‘responses, values, beliefs, and prejudices’ (Morley 1997: 139) and research involves selection, explanation, interpretation and judgment. Thus, it is important that the ‘person’ is made explicitly and the processes involved in research procedures are clearly outlined in order to uncover the differences that we as researchers make (Jones 1997). (xxx 2002: 55).

A deliberate mix of epistemological methodological approaches was used to analyse transcripts to identify important themes. Consequently, ongoing ‘constant comparison’ could be conducted in a systematic way (Hancock et al, 2009). This allowed categories and themes to be developed and interpreted and aimed to be as faithful as possible to the participants’ accounts. This rounded approach provided optimised opportunity to derive meaning from a range of multi-disciplinary stances. It also permitted the research topic to be considered from complimentary and contrasting angles, all filtered through the broader lens of thematic analysis. In essence the multi-disciplinary nature of our research team suited the adoption of thematic analysis as it has the advantage of being independent of theory and can be applied across a range of epistemological approaches. This method recognises that themes do not simply emerge from the data, as though they are latently waiting to be explored. Researchers using thematic analysis do not naively ‘give voice’ to participants; they are actively engaged in editing and selecting data to frame those voices (e.g. Stanley and Wise 1993, Braun and Clark 2006).

Five major themes emerged during analysis (Table 3):

I - P (power and empowerment); O (occupation); E (emotion); M (meanings of food); S (space and place).

Table 3. Detail of major themes that emerged during analysis		
Theme	Key Quote	Sub-themes
Power and empowerment	<i>‘Everyone works together, not everyone doing their own little thing and everything works together.’</i>	working together; choices and preferences; planning and control; budgets; resources; communication and negotiation; pleasure in others’ enjoyment
Occupation	<i>‘... it gets you out of your room. Stops you being bored. It’s just something to do. Besides I’ve always enjoyed cooking.’</i>	employment (something to do) learning, training and support; enthusiasm; development and growth.
Emotion	<i>‘... but me it’s just something to eat.’</i>	pleasure or convenience; tension, enthusiasm, emotion management and emotion work; annoyance over waste; relationships (including those with non-human animals).

Meanings of food	<i>'...basically I was brought up on traditional, you know.'</i>	good and bad; basic/traditional food, spicy food; healthy options; likes, dislikes and fussy eaters; microwave meals and 'home' cooking; cultures; ceremonies; photographs enable you to see food in a different way.
Space and place	<i>'... they were coming in the kitchen, they were not respectful of other people. . . well, it's dangerous to be in a kitchen...[if] you haven't got respect for the way you're working.'</i>	generational groupings and differences; timings and routines; noise; disrespect; not taking the task (food preparation) seriously.

NB: see XXXX et al 2017 for further discussion of data.

The 'Voice Centred Relational Method' (VCRM, Mauthner and Doucet 1998) was adopted to give further authenticity to the voices of service user participants. This is an approach that acknowledges that selves are interrelated through a web of psychological and social complexity. This analytical approach became a primary means to give authenticity to the voices of respondents (and researchers) in this project. From focus group discussions we generated a set of 'I-Poems' drawing on statements incorporating "I/we/you" made by service users in response to their image-making during the course of the discussions (see xxx and xxx 2017 for more here).

Jeffrey's I-Poem relates to all the key themes:

Can we?
 I can't stand chillies
 Can't think of much I dislike
 That's the way I look at it
 When I was living away
 We used to keep
 You could grow everything
 Everything you ate was fresh
 You know where it is
 What you can do
 We cook up a big meal
 I was doing some
 I said to the owner
 I said

You've got to be joking
I said to him how
Can you call that free range?
I prefer the real ones
I got used to it
I was working in Ireland
You can get Liffy water
I don't know
I mean a pint of Guinness
We had someone
You just leave them

Whereas Jim's and Josh's focus specifically on 'meanings of food':

JIM

I love homemade soup
I looked forward to it
I can't really
I'm assuming
I don't like very spicy food
I never have done
I've always
I mean
I will eat a curry
I don't like it very spicy
I don't like it
I like my basic food
We would look forward to it
We used to love and enjoy that

JOSH

I have the eggs
I dint like
I can't
I was sick
I don't like
I just don't like
I like the eggs

DISCUSSION

From our fieldwork experiences we support others who argue that participatory approaches can be a useful way to engage 'harder-to-reach' individuals (in this case those residing in a homeless centre), although limitations are an inherent part of such approaches. Despite our best intentions, it is debatable whether we were able to achieve the full extent of PAR's guiding principles. Our reflections on all of this follow.

Beginnings

Behaving and reflecting on ethics within research go beyond the gaining of ethical approval. A key concern of ethics committees is that of informed consent i.e. that respondents are consenting to involvement in research from a position of full understanding. Yet, it is usually difficult to assess whether consent is 'really' informed. Research involving gatekeepers may discourage participants who worry that these others may then have access to what they have divulged through the course of the research. Arguably this is particularly relevant when researching people who are receiving support, care or treatment as they may worry that what they say will influence future support/care/treatment which may, in turn and when relevant affect their treatment and their care from these individuals (Cannon 1989, Afshar 1994). This is relevant here as participants may have been deterred from involvement and/or reticent in some ways not least because the recruitment gatekeeper was also part of the research team. The presence of an anchor member of staff was on balance deemed successful as discussion with those service user participants that stayed involved with the project spoke of their trust in her. However we cannot know if it deterred others.

To date, a considerable amount of attention has been given by researchers to the importance of respecting and protecting those who participate in research. Researchers are increasingly concerned to shift the balance of power within research in favour of the researched (e.g. Stringer 1996, Koch et al 1999 and O'Neill 2008). Others insist on methods also meeting participatory and emancipatory criteria so that involvement in research is beneficial in its own right (e.g. Homfray 2008). Indeed, this was our aim. However:

... whilst acknowledging the political aspects of the research process within which power, emotion, involvement, detachment are all implicit it is important not to define the research process itself as political activity . . . The political motivations of both researchers and the researched should be subject to critical scrutiny, not least in terms of the imagined or potential connection between respondents and researchers. (xxx 2009)

This was demonstrated to us not only by the close relationship between some of the research team and service user participants (as noted above).

Doing

The issues of power and emotion are inevitably linked within research (Cornwall and Jewkes 1995, Ramsay, 1996; Young and Lee, 1996). Cornwall and Jewkes (1995) argue that what distinguishes participatory research from conventional research is not methods or theory, per se, but concerns over the 'location of power in the research process. Emotion **is** integral to methodological processes not least because emotion is part of everyone's life and emotional expression within the research process is often data in itself (e.g. Hochschild ([1983] 2003), Young and Lee 1996, Lee-Treweek and Lingokle 2000, Gray 2008). Building on the work of Hochschild (1983 [2003]) 'emotion work' has been defined as both the regulation and managing of others' feelings and the work individuals do on their own emotions in order to conform to dominant expectations in a given situation. Thus, emotion work is work on and for others and on and for oneself (Frith and Kitzinger, 1998; Duncombe and Marsden, 1998). Given that emotion work is gendered (e.g. Hochschild 1983 [2003], Frith and Kitzinger 1998), it is interesting to note that our participants were all males, and the members of the research team involved directly with the participants were all female. This did not, however, seem to influence recruitment, data collection or focus group discussions, but may have played a role (in a similar way to the presence of the anchor member/gatekeeper in the focus group itself), an all-female research team might have deterred some recruits and/or open discussion. But we have no way of knowing this for sure.

Clearly, displays of emotion can be difficult and even dangerous for both researchers and the researched. For example, researchers have written of how visible displays of sorrow, joy and anger within fieldwork can cause distress for all involved. Whilst the need of the researcher to sometimes hide their emotions, not least in response to sexist, racist and other prejudicial comments and behaviour has also been acknowledged (e.g. Young and Lee 1996, Sampson et al 2008).

The centre environment presented the research team with the challenge of 'emotional management' (Hochschild 1983[2003]. Certain participants, for example Nemo, displayed marked mental health related characteristics. Similarly, Ricky was present in focus group 1 but was unable to communicate, due to being 'under the influence' which made his presence somewhat unsettling for the researchers. This

reinforces that researchers are responsible for fully understanding the needs of the researched in this case 'marginalized' individuals with complex needs. Researching the 'vulnerable' is duly considered by Liamputtong (2007) yet this terminology may not be fitting as possibly ignores the considerable resilience in the face of hardship displayed by those who find themselves in challenging circumstances (xxx and xxx 2017). Most of our research team, with backgrounds in health and social sciences, had strong insight into the values of compassion and empathy, yet in team meetings it became evident some felt additional training might have been useful. As noted above some researchers argue that research can (even should) be beneficial in its own right (Homfray 2008) and yet although research may be beneficial, therapeutic even, it is not, nor should be confused with counselling (xxx and xxx 1994).

Reflecting on our occasional 'discomfort' in the field we think it likely that this resulted from a mixture of feelings including wanting (as people rather than 'just' researchers) to do more than was possible in our research remit; humility when we acknowledged that our participants might not necessarily want anything else from us; and, we accept given social expectations of appropriate 'presentations of self' (Goffman 1956) some embarrassment.

There was also a sense at times that our service user participants were slightly apologetic about their efforts taking their photos, in that they were trying to please and nervous about 'doing it wrong'. Additionally, for some participants at least, both the motivation for engagement in food preparation and participation in the project is the lack of other opportunities, commonly referred to as 'occupational deprivation', (see Whiteford, 2000), yet our observations illustrated participation in most food activities were inconsistent at best (see table 2). With reference to engagement in food preparation this exchange in Focus Group Two is relevant:

Paul: You know, it gets you out of your room. Stops you being bored. It's just something to do. Besides I've always enjoyed cooking. . . . Well, since I were younger. Always enjoyed it.

FG facilitator: You say it gives you something to do, I mean there aren't many options around her are there?

Jim: No, not round here there isn't other than people they just don't want to do anything. I mean there isn't enough places in the kitchen to occupy too many people unless they start rotating it but I don't think that would work.

FG facilitator: What would you be doing otherwise?

Jim: Well....bored to tears basically. Well the job situation is, well, everyone knows it's not very good at my age. I'm sixty next year. Even though I've got over 40 years' experience of being a plumber, it's difficult to get back into that. I've looked at other work and I couldn't work in an office. That would really do my head in.

And in answer to questions about research participation and specifically the use of photography:

Jeffrey: It was disappointing, a bad memory when I've put it onto two different cameras and picking up the wrong one but it was, I don't know, it was not being able to travel to move round. I'm used to, when I used to do photography as my hobby I could go anywhere and take photographs but this was sort of limited. And then I did some of the kitchen here and I wanted to see other kitchens. Those were the limitations. I could have gone further and taken more interesting photos. It was just the idea of, trying to portray the history of your meal from start to finish, you know from the wild animal to the dish at the end. That was the picture that I wanted to portray.

Paul: Alright. Yeah. Something to do! No. It were alright. I enjoyed it.

Additionally, it is important to remember that research relationships are fluid. Thus, despite assumptions that the balance of power is always in favour of the researcher(s) the reality is often more complicated. So, it may be inaccurate, even patronizing to assume that research participants are always vulnerable and/or need to be empowered by the research process (xxx 2003, 2004). Thus, reflection on the meaning of research participation needs to include reference to the participants' as well as the researchers' agenda. Involvement may be partial and full cooperation is not universal (Davis et al. 2000).

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Ross: *I should have took more pictures...I got silly pictures of things like crisps and that...I should have took a bit more care of the pictures. It isn't really telling a story...I dunno why I took a picture of Haribo [laughs]...*



Image 3. 'Haribo'



Image 4. 'crisps [and that]'

And yet, despite shifting power relationships, even resistance, during data collection it is almost always the researchers with whom the balance of power resides during analysis and data presentation (e.g. Stacey 1991, xxx 2003). Indeed, whilst a 'significant advantage of participant-led visual data production is the limits it places on the intrusive presence of the researcher' (Mannay 2013:136), there are inevitable power dynamics at work/play within any social interaction, not least within a research encounter (xxx 2003, Liamputtong 2007). With this in mind we accept that: 'elements of inequality, exploitation, and even betrayal are endemic to [research]' (Stacey, 1991: 144).

Our regular group meetings meant that we had time to discuss our individuals and shared fieldwork (and other) concerns. It is accepted that research group meetings synergize project progress and professional development (Delamont and Atkinson, 2001). Attending meetings can be a challenge, however, for academics who already have multiple commitments. If managed well, research meetings can provide a valuable infrastructure that supports professional development, scholarship and productivity (Vincent, 2009), both individually and on a group level. Regular critiquing of one's own work by the group can develop and evolve ideas. Group members can glean diverse perspectives on their work especially if members of another profession participate. Additionally, such meetings provide a space for researchers to support each other emotionally which is invaluable even if emotional well-being of researchers is often given less attention than other ethical issues (e.g. Lee-Treweek and Linkogle 2000).

Analysing and Representing

Reflecting on the analysis, there is a need to consider both involvement and representation. Some researchers have argued that in order to avoid, or at least minimize, the exploitative aspects of research, researchers should think carefully about attempting to represent 'others': people that are not like them. Oliver (1997), writing about non-disabled people researching people with disabilities (but the point is generalizable), suggests that some research by non-disabled people violates the experience of disabled people and is irrelevant to their needs. However, there are problems here, not least because academia is not representative of all groups which could mean that the experience of some groups remains. Speaking only for ourselves could also lead to much more research on already privileged groups and implies that those who come from unrepresented and/or minority groups have a 'duty' to represent 'others' like them (Wilkinson and Kitzinger, 1996; xxx, 2003).

The use of social science knowledge for both understanding and transforming social policies and political systems has come to be assumed as demonstrated in the current emphasis of evidence-based practice (Solesbury, 2001; David, 2002). Yet, knowledge gained from health (services) research is also used to inform the development of social policy. This, however, requires engagement by diverse health service users to avoid findings being un-representative and inequitable (Bonevski et al 2014) thus a challenges to get right. Mayall et al (1999) note research involves three intersecting interests: those of researchers, of research respondents and of those individuals, groups and institutions with the power to influence research priorities through funding, policy making and other processes. They add that researchers have a moral obligation to take into account the impact of their work on others.

Reflexivity – both descriptive (the description of one's reflection) and analytical (involving comparison and evaluation) – are essential parts of the research process. Furthermore, both researchers and respondents engage in it. But, it is essential to acknowledge that as researchers we are in a privileged position, not only in terms of access to multiple accounts, but also in terms of discipline training which enables us to engage in 'second order theorising' or what Giddens (1984) has called the 'double

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

hermeneutic'. This involves 'interpretation', not just 'description' of respondents' as well as the researchers' analytical processes (xxx 2009).

Reflecting

Although our approach to data collection adhered in part to the concepts of PAR, analysis, largely due to time constraints, was undertaken by the research team. We acknowledge the limitations here. The creation of 'pen portraits' was true to the PAR philosophy, as these were discussed and agreed with participants themselves. Yet, we could have more fully consolidated our PAR approach, by continuing our engagement with participants following the photo elicitation process, and including their support workers in this. Doing research inclusively requires people from the non-dominant groups in society being put at the centre of the research process (Nind 2014) and yet as we have already considered, the significance of power and emotion require continuous attention throughout the research process and the production of the research product.

PAR recognizes that we are all able to utilize a range of methodologies to investigate, analyse, reflect on, and come to terms with new knowledge. Furthermore these processes of inquiry have the potential to help us overcome the forces that oppress us use' (People's Knowledge, 2016: 2)

Participatory methodologies are considered as being more reflexive, iterative and flexible, in contrast with the more rigid linear designs of conventional sciences (Cornwall and Jewkes, 1995). Better understanding of homeless individuals is known to lead to development of broader public policy responses (Booth, 2006) making their voices essential in this dialogue. We did successfully engage a (small) group of homeless service users, by considering ethical and design aspects carefully, who (enthusiastically) participated in the photo elicitation approach. This can be argued to address (in part) the first two of the four PAR guiding principles (democratic, enabling participation of all people, equitable, acknowledging people's equality of worth). More work is needed, however, to address the remaining of the guiding principles:

- liberating, providing freedom from oppressive, debilitating conditions;
- life enhancing, enabling the expression of people's full human potential (Stringer 1996; see also Minkler and Wallestein 2003 and Minkler 2010).

The FLM project is ongoing and we will endeavour to address some of these aspects in its future elements. To progress this project, we have already involved further diverse 'multiple and complex needs' service users and providers in participatory approaches, including 'Appreciate Inquiry' interviews (informed by Bellinger and Elliott, 2011), which have successfully engaged participants through the formation of informal community-research partnerships, which are deemed to strengthen research outputs (Bonevski et al 2014). We will endeavour to include participants more consistently throughout the research process, including analyses, fully acknowledging appropriate ethical considerations. Finally, we also intend to use some of the photographs taken during this project to run an exhibition for public engagement purposes. We would like, with their agreement, to engage with participants themselves as curators of such an exhibition, which would potentially meet the final of the four guiding principles of PAR.

A final reflection is on the strengths (and challenges) of the multidisciplinary research team, which can highlight differences of approach and opinion and as such necessitates further emotion work which, as with all such activity, can be hard. This hard work is of benefit not least because:

Collaboration of any kind helps give a voice to individuals with different experiences and demonstrates the influences that shape individual life choices and lifecourses. . . . although working together takes effort and compromise at times the rewards it brings are obvious: personally, politically and theoretically (xxx et al 2007: 196).

Very little has been written specifically on the training and development needs for multi-disciplinary research teams in the health and social sciences. In healthcare specifically it is well known that (multi-disciplinary) team work is essential and that 'collective input always benefits outcome', but getting a balance is key to success (Fletcher, 2008). Similarly, evidence can mainly derive from biomedical models, which focus predominantly on 'positivist' science. This can, consequently, exclude or de-value other forms of knowledge generation (Duchscher, 1999), those personal narratives and lived experiences, both of which are inherent elements in participatory

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

approaches. Taking time out as a team with a skilled facilitator can be very beneficial for team dynamics.

CONCLUDING THOUGHTS

Overall we believe that our use of participatory creative methods of engagement, within the FLM project has, to some extent, successfully extended the remit of food related photographic methodologies, providing reflective qualities of engagement through narratives (and their associated images). Yet, there is still more that we could have done. This research experience has highlighted for us the importance of reflection on issues of power, emotion and involvement across participant relationships within research. We acknowledge the limitations in the 'beyond text', participatory based method not least when working with transient and vulnerable populations (Hickney and Downey 2003). Although our study group was small, the narrative strength provided by the participants' voices, supported by the images they created, was rich. Additionally, our multi-disciplinary approach prompted a multi-disciplinary analysis (see XXX et al 2017). We recommend that future research could explore aspects of PAR with more depth, with increased numbers of participants and a wider range/diversity of 'marginalized' communities. Similarly, future work might focus more deeply on interrogating of the processes, practicalities and ethical realities of working in a participatory style using creative methods. With reference to substantive concerns further work could also include investigations of impact of participatory food events to enhance public engagement and community wellbeing. With hunger a topic of national debate, there is an urgent need to consider how to engage better with socially excluded individuals and communities. More progressive solutions are now being sought, that foster 'co-productive' philosophies (Slay and Robinson, 2011), seeing people as assets and tackling issues of power and transparency. Creative approaches, such as those critiqued here, offer great potential to engage under-researched groups, and as such should be endorsed and utilised in a range of settings.

Acknowledgements

The project was funded by an Institute for Sustainability Solutions Research (ISSR), Plymouth University small collaborative award in May 2014 and British

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Academy/Leverhulme small grant (2015-17). We are grateful to the homeless centre and all those who gave their time to be involved in the project

NOTES

*Any individual excluded on these grounds, was given the opportunity to participate in a subsequent session, as deemed appropriate

**As regards mental health, there were several clients in the centre with defined mental health problems that were relatively well managed with medication.

*** Team members:

GP – General Practitioner

SW – Academic Social Worker

PG – Post Graduate Student (environmental science)

OT – Academic Occupational Therapist

V - Volunteer

References

NB: ALL REFERENCES BY AUTHORS REMOVED FOR PEER REVIEW

Afshar, H. (1994) 'Muslim Women in West Yorkshire: growing up with real and imaginary values amidst conflicting views of self and society', in H. Afshar and M. Maynard (eds.) *The Dynamics of 'Race' and Gender: Some Feminist Interventions* London: Taylor and Francis

Bellinger A and Elliott T (2011) What Are You Looking At? The Potential of Appreciative Inquiry as a Research Approach for Social Work *British Journal of Social Work*, 1-8

Bonevski B, Randall M, Paul C, Chapman K, Tyyman L, Bryant J, Brozek I and Hughes C (2014) reaching the hard-to-reach: a systematic review of strategies for improving health and medical research with socially disadvantaged groups. *BMC Medical Research Methodology*, 14, 42:

Booth, S. (2006) 'Eating rough: food sources and acquisition practices of homeless young people in Adelaide, South Australia' *Public Health Nutrition* 9(2): 212–218

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology' *Qualitative Research in Psychology* 3(2): 77-101

Bukowski, K and Buetow, S. (2011) Making the invisible visible: a Photovoice exploration of homeless women's health and lives in central Auckland. *Social Science and Medicine*, 72(5):739-46

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Cannon, S. (1989) 'Social Research in Stressful Settings: difficulties for the sociologist studying the treatment of breast cancer' *Sociology of Health and Illness* 11(1): 62-77

Catalani, C. and Minkler, M. (2010) 'Photovoice: A Review of the Literature in Health and Public Health' *Health Education and Behaviour* 37: 424.

Clarke-Thomas, H. and Irwin, J. D. (2013) Using Photovoice with At-risk Youth in a Community-based Cooking program. *Revue Canadienne de la Pratique et de la Recherche en Di  t  tique* – Vol 74 n   1,

Cornwall A and Jewkes R (1995) What is Participatory Research? *Social Science and Medicine*, 41, 12, pp1667-1676

David, M. (2002) 'Introduction: Themed Section on Evidence-Based Policy as a concept for Modernising Governance and Social Science Research', *Social Policy and Society*, 1(3): 213-214.

Davis, J. Watson, N. and Cunningham-Burley, S. (2000) 'Learning the Lives of disabled children' in P. Christensen and A. James (eds.) *Research with Children: perspectives and Practices* London: Routledge Falmer.

Delamont, S. and Atkinson, P. (2001) 'Doctoring uncertainty: mastering craft knowledge' *Social Studies of Science* 31: 87-107

Duchscher, J. E. (1999). Catching the wave: understanding the concept of critical thinking. *Journal of Advanced Nursing*, 29(3), 577-583.

Duncombe, J. and Marsden, D. (1998) "‘Stepford Wives’ and ‘Hollow Men’?: doing emotion work, doing gender and ‘authenticity’ in intimate heterosexual relationships' in G. Bendelow and S. J. Williams (eds.) *Emotions in Social Life: Critical Themes and Contemporary Issues* London: Routledge

Fletcher, M. (2008) 'Multi-disciplinary team working: building and using the team' *Practice Nurse* 35(12): 42-47

Frith, H. and Kitzinger, C. (1998) "‘Emotion Work’ as a Participant Resource: a feminist analysis of young women’s talk-in-interaction' *Sociology* 32(2): 299-320

Giddens, A. (1984) *New Rules of Sociological Method* London: Macmillan.

Goffman, E. (1956) *The Presentation of Self in Everyday Life* New York: Random House

Gray, B. (2008) 'Putting Emotion and Reflexivity to Work in Researching Migration' *Sociology* 42(5): 935-952

Green, L. W. George, M. A. Daniel M., Frankish, C. J. Herbert, C. P. Bowie, W.R. et al. (1995) *Study of Participatory Research in Health Promotion: review and Recommendations For the Development of Participatory Research in Health Promotion in Canada* Vancouver, British Columbia: Royal Society of Canada

Hancock B, Ockleford E and Windridge K (2009) *An Introduction to Qualitative Research*. The NIHR Research Design Service, Yorkshire & the Humber

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Harper, D. (2002) Talking about pictures: a case for photo elicitation *Visual Studies*, Vol. 17, No. 1. Homeless Link (2010) *The health and well-being of people who are homeless: Evidence form a National audit* London: Homeless Link

Hewitt-Taylor, J. (2001) 'Use of constant comparative analysis in qualitative research' *Nursing Standard* 15(42): 39-42

Hickney, C. and Downey, D. (2003) *Hungry for change: Food Poverty social exclusion and homelessness in Dublin*, Pilot Research Report, Dublin, Focus Ireland.

Hochschild, A. R. (1983[2003]) *The Managed Heart: The Commercialisation of Human Feelings* London: University of California

Homfray, M. (2008) 'Standpoint, Objectivity, and Social Construction: Reflections from the Study of Gay and Lesbian Communities; *Sociological Research Online* 13(1) <http://www.socresonline.org.uk/13/1/7.html>

Johnson CM, Sharkey JR & Dean WR (2011) It's all about the children: a participant-driven photo-elicitation study of Mexican-origin mothers' food choices. *BioMedCentral Women's Health*, 11:41

Jones, S. J. (1997) 'Reflexivity and Feminist Practice: ethical dilemmas in negotiating meaning' *Feminism and Psychology* 7(3): 348-351

Koch, T. Kralik, D. and Sonnack, D. (1999) 'Women Living with type II diabetes: the intrusion of illness' *Journal of Clinical Nursing* 8(6): 712-22

Koch T. and Krakik, D. (2001) 'Chronic Illness: reflections on a community-based action research programme' *Journal of Advanced Nursing* 36(1): 23-31

Lambert EY, Wiebel WW (Eds): *The Collection and Interpretation of Data from Hidden Populations*. Washington, DC: United States National Institute on Drug Abuse; 1990. from <http://www.drugabuse.gov/pdf/monographs/download98.html>.34

Liamputtong, P. (2007) *Researching the vulnerable. A guide to sensitive research methods* London Sage

Lee-Treweek, G. and Linkogle, S. (eds) (2000) *Danger in the Field: Risk and Ethics in Social Research* Routledge: London

Mannay, D. (2013) 'Who put that on there ... why why why?' Power games and participatory techniques of visual data production' *Visual Studies* 28(2): 136-146

Mauthner, N. and Doucet, A. (1998) 'Reflections on a Voice Centred Relational Method' in J. Ribbens and R. Edwards (eds.) *Feminist Dilemmas in Qualitative Research* London: Sage

Mayall, B. Hood, S. and Oliver, S. (1999) 'Introduction', in S. Hood, B. Mayall, and S. Oliver, (eds), *Critical Issues in Social Research* Buckingham: Open University Press

Mills, C. W. (1959) *The Sociological Imagination* London Penguin.

Minkler, M. and Wallestein, N. (2003) *Community Based Participatory Research for Health* San Fransisco, CA: Jossey-Bass

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Minkler, M. (2010) 'Linking Science and Policy Through Community-Based Participatory Research To Study and Address Health disparities' *American Journal of Public Health* 100(1): S81-87

Mitchell CM and Sommer M (2016) Participatory visual methodologies in global public health. *Global Public Health* 11(5–6): 521–527.

Morley, L. (1997) 'Interrogating Patriarchy: the challenges of feminist research' in L. Morley and V. Walsh (eds) *Breaking Boundaries: women in higher education* London: Taylor and Francis

Namageyo-Funa, A. Rimando, M. Brace, A. M. Christiana, R. W. Fowles, T. L. Davis, T. L. Martinez, L. M. and Sealy, D. A. (2014) 'Recruitment in qualitative public health research: Lessons learned during dissertation sample recruitment' *The Qualitative Report* 19(1): 1-17

Niell, C, Leipert, B.D, Garcia A.C and Kloseck M, (2011) Using Photovoice Methodology to Investigate Facilitators and Barriers to food Acquisition and Preparation by Rural Older Women. *Journal of Nutrition in Gerontology and Geriatrics*, 30, 3, doi.org/10.1080/21551197.2011.591268

Nind, M. (2014) What is Inclusive Research?, *The 'What is?' research method series*, Bloomsbury Publishing, London and New York, NY

Norman, T; Pauly, B. (2013). Including people who experience homelessness: A scoping review of the literature. *International Journal of Sociology and Social Policy*, 33 (3/4), 136-151.

Olivet J, Bassuk E, Elstad E, et al. (2010) Outreach and engagement in homeless services: A review of the literature. *The Open Health Services and Policy Journal* 3: 53–70.

Oliver, M. (1997) 'Emancipatory Research: realistic goal or impossible dream', in C. Barnes and G. Mercer (eds.) *Doing Disability Research* Leeds: The Disability Press.

O'Neill, M. (2008) 'Sex, Violence and Work: transgressing binaries and the vital role of services to sex workers in public policy reform' in XXX, XXX, XXX and XXX (eds.) *Sex as Crime?* Cullompton, Devon: Willan

People's Knowledge (2016) *People's Knowledge and Participatory Action Research: escaping the white walled labyrinth*. People's Knowledge Editorial Collective. Available from <http://www.peoplesknowledge.org/wp-content/uploads/2016/11/Peoples-Knowledge-and-Participatory-Action-Research-Book.pdf> (accessed 19.12.17)

Radley, A. Hodgetts, D. and Cullen, A. (2005) 'Visualising homelessness: A study in photography and estrangement' *Journal of Community and Applied Psychology* 15: 273-295

Ramsay, K (1996) 'Emotional Labour and Organisational Research: how I learned not to laugh or cry in the field', in S. E. Lyon and J. Busfield (eds) *Methodological Imaginations* London: Macmillan

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges

Sampson, H. Bloor, M. and Fincham, B. (2008) 'A price worth paying? Considering the "cost" of reflexive research methods and the influence of feminist ways of "doing"' *Sociology*, 42(5): 919–34

Schulze, S. (2007) 'The usefulness of reflexive photography for qualitative research: a case study in higher education' *South African Journal of Higher Education* 21(5): 536-553

Solesbury, W. (2001) *Evidence Based Policy: Whence it came and where it's going* London: ESRC Centre for Evidence Based Policy and Practice, Queen Mary, University of London.

Slay, J. and Robinson, B. (2011) *In this together: Building knowledge about co-production*. Report by the New Economics Foundation, London, July. Available at: http://www.cnwl.nhs.uk/wp-content/uploads/2013/01/In_This_Together.pdf (accessed 19.12.17).

Stacey, J. (1991) 'Can there be a feminist ethnography?' in S. Gluck and D. Patai (eds.) *Women's Words, Women's Words, Women's Words: The Feminist Practice of Oral History* New York: Routledge

Stanley, L. and Wise, S. (1990) 'Method, Methodology and Epistemology in Feminist Research Processes', in L. Stanley (ed.) *Feminist Praxis: Research, Theory and Epistemology* London: Routledge

Stanley, L. and Wise, S. (1993) *Breaking Out Again: feminist ontology and epistemology* London: Routledge

Stringer, E. (1996) *Action Research: A Handbook for Practitioners* Thousand Oaks: Sage

Vincent, M. A. (2009) The Value of Research Group Meetings *Biological Research for Nursing* 11(2): 117-118

Wang, C. C. Cash, J. L. and Powers, L. S. (2000) 'Who Knows the Streets as Well as the Homeless? Promoting Personal and Community Action through Photovoice. Health' *Promotion Practice* 1: 81-89

Whiteford, G. (2000) 'Occupational deprivation: Global challenge in the new millennium' *British Journal of Occupational Therapy* 63(5): 200–204.

Wilkinson, S. and Kitzinger, C. (eds.) (1996) *Representing the Other: a feminism and psychology reader* London: Sage.

Young, E. H. and Lee, R. (1996) 'Fieldworker Feelings as Data: 'emotion work' and 'feeling rules' in first person accounts of sociological fieldwork' in V. James and J. Gabe (eds.) *Health and the Sociology of Emotions* London: Blackwell.

Zussman, R. (2000) 'Autobiographical Occasions: Introduction to the Special Issue', *Qualitative Sociology - Special Issue: Autobiographical Occasions*, 23(1): 5-8.

Employing Participatory Methods to Engage an Under-Researched Group: opportunities and challenges